
East Lothian Council Partnerships & Community Services

Segregated Active Travel Corridor Feasibility Study

Technical Appendix

Detailed Cost Budgeting



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Environmental Consultants
June 2016 / 8583

Proposed East Lothian Cycle Superhighway





1.1 Vision for the Cycle Superhighway

East Lothian has the opportunity to provide a largely off-road Segregated Active Travel Corridor or “Cycle Superhighway”, which will provide a faster and more direct high-quality route to Edinburgh. The route, and the spurs off it, will provide a multi-user path network, connecting the principle settlements, employment areas, transport hubs and areas of future growth.

The route will create the primary hierarchy within a regional network linking Edinburgh, Musselburgh, Haddington and Dunbar. Extension of the route along the A199 will connect Haddington and Dunbar to the Musselburgh section of the route, by utilising the existing road infrastructure.

It is envisaged that the entire route (Dunbar to Musselburgh) will be delivered in 3 sections:

Section 1 West: Macmerry to Newcraighall

Section 2 Mid: Haddington to Macmerry

Section 3 East: Dunbar to Haddington

1.2 Indicative Cost Factors

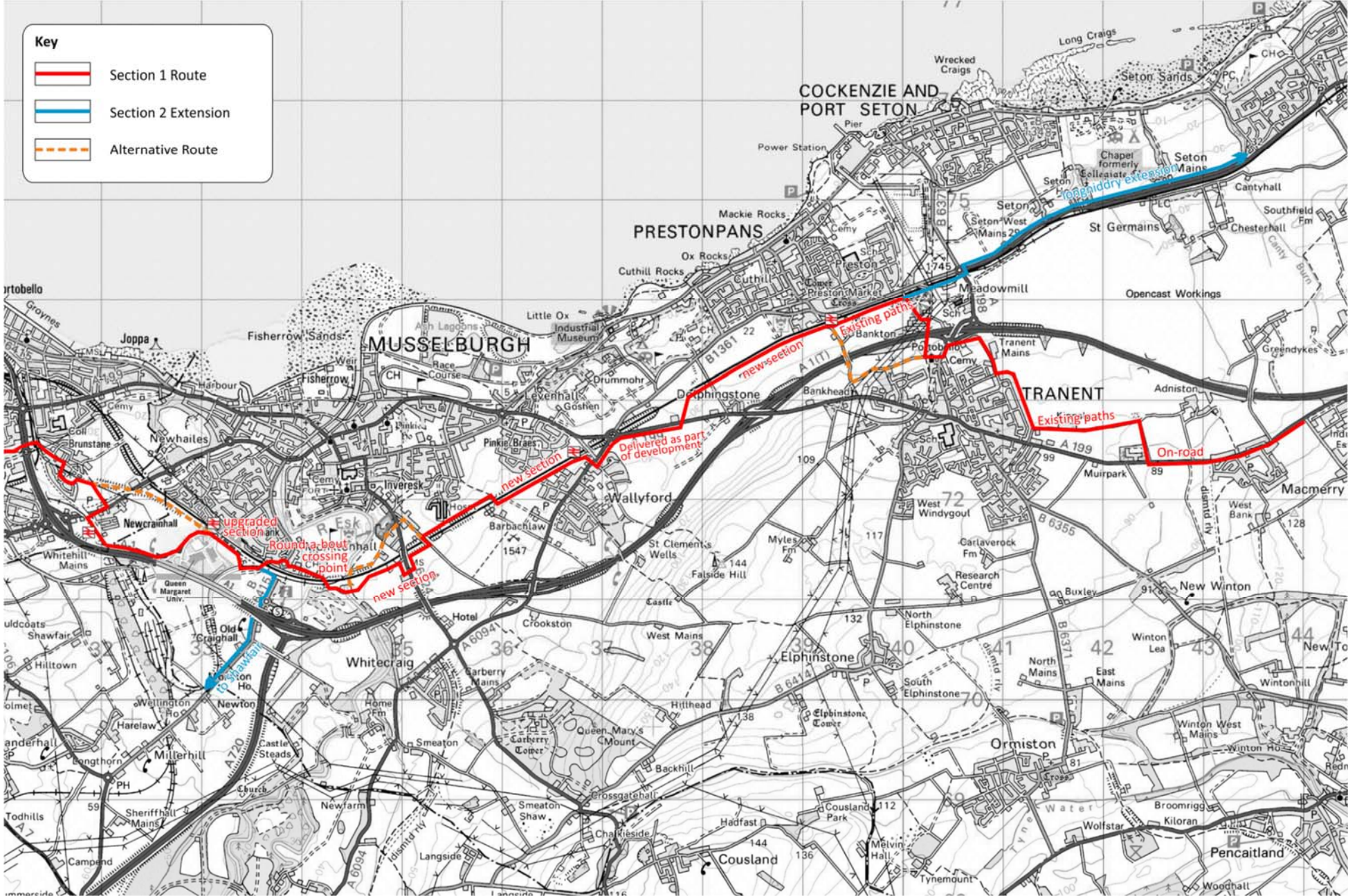
The following assumptions / factors have been used to provide the indicative cost estimate:

- Path Lengths have been measured from Google Earth pro
- Path categories have been selected from an examination of plans, maps and Google Earth information.
- It is envisaged that works will be completed in a piecemeal fashion, with sections addressed as land access and budget becomes available.
 - * Path Cost Budgets are **whole project construction costs** (NOT whole project costs) derived from a variety of sources: 2015 completed project to construct 800m of 3m cycleway on existing surfacing and road sections
 - * 2015 project budget for construction of 4,600m of 3m cyclepath across mixed use and arable farmland
 - * SPONS Civil Engineering price estimating resource 2009, updated to 2015 prices
- New Path Construction across grassland/mixed use land is assumed to be a total of 465mm deep, and includes 240mm of capping material below 75mm blacktop on 150mm Type 1 material. New paths are not constructed with kerbed edges.

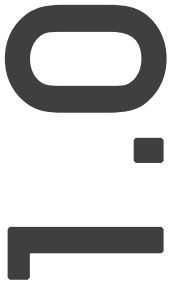
- Extended / widened paths are assumed to be of a comparable make up to existing footways, and allow for a full kerb at the interface with the existing road.
- Existing 'completed' paths and housing scheme roads have a nominal contract allowance of £150/m for upgrade and maintenance works.
- Budget rates include contract prelims and contingency @ 20%.
- Budgets exclude VAT.
- Project Budgets require addition of allowances for further cost factors and project activities.
- Typical anticipated construction sections are illustrated in the draft report.
- New build paths are contract budgeted at £475/m (refer to section 2.0).
- Alterations and amendments to existing trunk and suburban roadways are contract budgeted at £400/m (refer to section 2.0).

It is accepted that paths in individual sections and locations will be subject to local constraints and requirements as well as budget needs; these local factors require to be reviewed and identified in detail at the next stage of budget review; the costs in this budget are reflective of general outturn costs that accurately reflect the scale and type of path that serves the ambition of the Study.

Figure 1: Proposed Cycle Superhighway - Newcraighall to Macmerry



Detailed Cost Budgeting



1.3 Costed Route Sections

The proposed route has been reviewed and budgeted in two sections:

- Newcraighall to Macmerry (16.0km)
- Dunbar to Macmerry (22.8km)

Figure 1 indicates the sections of the path route and the sections that have been costed in the indicative cost table, contained in section 4.

1.4 Macmerry to Newcraighall Indicative Cost

The suggested initial project cost budget for the proposed 3m wide, 16.0km long 'superhighway' from Macmerry to Newcraighall, based upon assuming a significant intervention to existing adopted roads, is laid out below:

Item	Cost
Net Construction costs, prelims, contingency	£6.2M
Calculated Optimism Bias @ 24%	£1.5M
Fees and project management costs	£1.3M
Total	<u>£9.0M</u> (or £570/m)

Refer to section 3.0 for the optimum bias calculation.

It is understood that approximately £0.25M of the Newcraighall to Macmerry route budget is now covered by developer contribution works at Wallyford Road.

1.5 Dunbar to Macmerry Indicative Cost

The suggested initial project cost budget for the proposed 3m wide, 23.8km long 'superhighway' from Dunbar (West Bams) to Macmerry based upon assuming a significant intervention to existing adopted roads, is laid out below:

Item	Cost
Net Construction costs, prelims, contingency	£9.2M
Calculated Optimism Bias @ 24%	£2.2M
Fees and project management costs	£1.6M
Total	<u>£13.0M</u> (or £570/m)

Comparator Projects: South-West City Way (Glasgow City Council), carriageway allocation segregated cycleway, opened 2015: £1.25M for 2.0km, or £625/m

Figures 2 and 3 indicates the sections of the path route and the sections that have been costed in the indicative cost table, contained in section 4.

Typical Existing Trunk Build Section 100m long, 2m wide, replaced kerbs	unit	nr	rate	total
Street furniture replacement / clearance	m	100	£ 25.00	£ 2,500.00
Excavate existing road/replace kerb/adjust drainage/adjust existing footway/adjust road entries/regulate footway	m	100	£ 75.00	£ 7,500.00
Excavate other material to form level path	m ³	58	£ 10.00	£ 575.00
Disposal surplus soil off site.	m ³	58	£ 20.00	£ 1,160.00
25 mm deep HRA 15 / 10F.	m ²	400	£ 17.50	£ 7,000.00
50 mm deep DBM AC20.	m ²	200	£ 17.50	£ 3,500.00
150 mm Type 1.	m ²	200	£ 13.00	£ 2,600.00
240 mm 6F2 Capping.	m ²	200	£ 10.00	£ 2,000.00
Allowance for filter drainage. Include for 100 mm dia perforated pipe and granular surround	m	50	£ 7.50	£ 375.00
Local utilities works	m	20	£ 75.00	£ 1,500.00
2.0 m Security Fencing/1.2m barrier/lining	m	20	£ 110.00	£ 2,200.00
Street Lighting adjust	m	100	£ 20.00	£ 2,000.00
Sub Total				£ 32,910.00
Site Preliminaries	%	15%		£ 4,936.50
Contingency	%	5%		£ 1,892.33
100m Section Total				£ 39,738.83
Rate per metre				£ 397.39
for report construction budgets use:				£400/m

**Typical Existing A199 Build
Section 100m long, 2m wide
with replaced kerbs**

Alterations and amendments to existing ex-trunk and suburban roadways are contract budgeted at £400/m

Items to be added for project budgets:

- Optimism Bias, Land costs, etc.
- Fees and project management costs.
- VAT, where applicable

Cost Base Calculations

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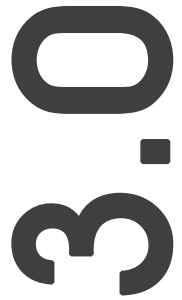
Typical New Build Section 100m long, 3m wide, no kerbs	unit	nr	rate	total
Vegetation clearance (10m width)	m ²	1,000	£ 0.39	£ 390.00
Tree felling (1 tree per 10m)	nr	10	£ 217.00	£ 2,170.00
Woodland management (1 day per 100m)	days	1	£ 500.00	£ 500.00
Clearance of fly tipped material (1m3)	m ³	10	£ 75.00	£ 750.00
Strip topsoil from working areas (depth assumed as 350 mm, 5m wide)	m ³	175	£ 11.00	£ 1,925.00
Excavate other material to form level path (5m wide, 115mm deep)	m ³	58	£ 11.00	£ 632.50
Disposal surplus soil off site.	m ³	105	£ 25.00	£ 2,625.00
25 mm deep HRA 15 / 10F.	m ²	300	£ 17.00	£ 5,100.00
50 mm deep DBM AC20.	m ²	300	£ 17.00	£ 5,100.00
150 mm Type 1.	m ²	300	£ 13.00	£ 3,900.00
240 mm 6F2 Capping.	m ²	300	£ 9.50	£ 2,850.00
Allowance for filter drainage. Include for 100 mm dia perforated pipe and granular surround	m	50	£ 7.50	£ 375.00
Log retention system	m	20	£ 30.00	£ 600.00
1.5 m Guardrail	m	25	£ 65.00	£ 1,625.00
2.0 m Security Fencing	m	25	£ 110.00	£ 2,750.00
Filling to verge areas with excavated material	m ³	128	£ 11.00	£ 1,402.50
Filling to verge areas with 50 mm imported topsoil.	m ³	10	£ 35.00	£ 350.00
Seeding at 35 g / m ² .	m ²	400	£ 1.14	£ 456.00
Woodland planting	m ²	250	£ 2.50	£ 625.00
Street Lighting	m	100	£ 65.00	£ 6,500.00
Miscellaneous Work				
Invasive weed treatments	nr	1	£ 1,500.00	£ 1,500.00
Interpretation Signage (Heritage Trail)	nr	0	£ 5,000.00	£ -
Soft Landscaping Maintenance (1 year)	%	10	£ 53,585.00	£ 5,358.50
Sub Total				£ 47,484.50
Site Preliminaries	%	15		£ 7,122.68
Contingency	%	5		£ 2,730.36
100m Section Total				£ 47,484.50
Rate per metre				£ 474.85

**Typical New Build Section
100m long, 3m wide, no
kerbs**
New build paths are contract
budgeted at £475/metre

for report construction budgets use:

£475/m

Optimism Bias Calculation



Optimism Bias Calculation: from Supplementary Green Book

Capital Expenditure

Project is classified as 'Standard Civil Engineering'

Upper Bound Total Optimism Bias: 44%

		Upper Bound Proportion	Mitigated Proportion	Commentary
Procurement	Late Contractor Involvement	3	3	no mitigation possible at this stage - long term project
	Dispute and Claims Occurred	21	13	Procurement to be via Council controlled selection and/or Developer works
Project Specific	Environmental Impact	22	5	Low impact proposals
	Other: Landowner Negotiations/costs	18	18	no mitigation possible at this stage - long term project
Client Specific	Inadequacy of Business Case	10	0	Business case approved ahead of project
	Poor Project Intelligence	7	1	Not an issue in this project; isolated issues to be expected
Environment	Public Relations	9	4	presumption that this is a positive intervention; some community objection expected
	Site Characteristics	3	3	no mitigation possible at this stage
External Influences	Economic	7	7	no mitigation possible at this stage - long term project
Total:		100	54	
Outturn Optimism Bias %:			23.76	USE: 24%

Macmerry to Newcraighall Budget Costs

Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
A	Macmerry Industrial Estate to Annfield Farm	Cycle lane marked on either side of the A199 road in paint. Foot path separated from the road by a grass verge in places. Some road narrowing points with cycle priority at key pedestrian crossing points in Macmerry. Limited signage.	Extended footway to form shared use lit path
B	Annfield Farm to Tranent Main Road	Current use is as agricultural fields.	3m wide shared use lit path (cycles / pedestrians), running through a proposed residential estate as part of a green corridor, signage, with low maintenance wildflower verges and native tree / shrub planting.
C	Tranent Mains Road and Church Street	No cycle provision, pedestrian pavement on one side of the road.	Change of use of pavement to shared use path, as the road width will not allow for cycle lane. Signage.
D	Dovecot Brae / Brickworks Road	Narrow minor road, without cycle provision or pavement. Very little vehicular use. Unbound surface.	Review the road surface condition / materials. Signage. Lighting.

Indicative Cost Table



Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget	
A1	Existing Road (ex trunk, open land)	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	379	400	£	151,600
A2	Existing Road (ex trunk, suburban)	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	676	400	£	270,400
A3	Existing Road (ex trunk, open land)	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	607	400	£	242,800
B1	Existing Surfaced Road, soft verges	Revisions and additions to existing roadway, drainage alterations, signing and lining	439	400	£	175,600
B2	5.0m wide road with no footway	Review road/lighting.surfacing	1081	400	£	432,400
B3	2/3m wide footpath	3m shared use lit path	614	400	£	245,600
B4	5.5m wide housing road with single footpath	Revisions and additions to existing footway, drainage alterations, signing and lining	122	400	£	48,800
B5	7.3m road with footpath	Revisions and additions to existing footway, drainage alterations, signing and lining	460	400	£	184,000
C1	Tranent Mains Road: 7.3m plus single footway	Revisions and additions to existing footway, drainage alterations, signing and lining	275	400	£	110,000
C2	Road Crossing and Roundabout avoiding route	Revisions and additions to existing footway, drainage alterations, signing and lining	75	400	£	30,000
C3	Church Street; 7.3m plus single footway	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	88	400	£	35,200
D1	Dovecot Brae; surfaced road, no footway; existing Spokes route; footpath / cycleway	Revisions and additions to existing roadway, drainage alterations, signing and lining	181	400	£	72,400
D2	Tar access track	Revisions and additions to existing track drainage alterations, signing and lining	344	400	£	137,600
D3	Tar access track		57	400	£	22,800
D4	Tar access track		394	400	£	157,600
D5	Existing road with footway		865	400	£	346,000

Macmerry to Newcraighall Budget Costs

Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
E	Prestonpans Station Car Park	Prestonpans Station Car Park.	Signage; Lighting; Creation of segregated route
F	Prestonpans Station car park to Kinwegar Recycling Centre	Current use is as agricultural fields.	3m wide shared use lit path (cycles / pedestrians), running along the southern side of the railway as part of a green corridor, signage, with low maintenance wildflower verges and native tree / shrub planting.
G	Kinwegar Recycling Centre to Wallyford Round-a-bout (Slaters Road)	Cycle lane marked on either side of the A199 road in paint. Foot path at the side of the road. Busy round-about.	Widen the road carriageway (south side) and re-use pavement section along the section of A199 to the Wallyford Round-a-bout for a two way segregated cycle lane. Signage and lighting.
H	Slaters Road to Wallyford Station	Small triangular agricultural field.	Two options to connect: cut across the field, following the line of the railway or divert along Slaters Road and The Loan. On-road or off road route options.
I	Wallyford Station car park across Wallyford Park	Mown grass pitches as part of Wallyford Public Park. Path connection from the Station car park to the park.	3m wide shared use lit path (cycles / pedestrians), running along the southern side of the railway, through Wallyford Park from Wallyford Station car park. Path connection with the existing path to the west. Signage.
J	Scarlett Park / Wallace Crescent Path	Existing pedestrian path.	Upgrade existing pedestrian path to 3m wide shared use lit path (cycles / pedestrians), where space allows. Railway crossing point. Signage.

Indicative Cost Table



Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget	
E1	Existing Surface	Revisions and additions to existing roadway, drainage alterations, signing and lining	154	400	£	61,600
F1	Existing unsurfaced Field access track	New Construction	1901	475	£	902,975
F2	Major Road Crossing point	Crossing Arrangements	26		£	50,000
G1	Existing Road (ex trunk, open land)	Revisions and additions to existing roadway, drainage alterations, signing and lining	472	400	£	188,800
G2	Roundabout avoiding route	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	80	475	£	38,000
H1	Main Road crossing point	Crossing Arrangements	25		£	50,000
H2	Open grassland adjacent to road	New Construction	285	475	£	135,375
H3	Main Road crossing point	Crossing Arrangements	10	400	£	4,000
H4	minor access road, single footway	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	226	400	£	90,400
I1	Open Grassland	New Construction	211	475	£	100,225
J1	Existing surfaced unlit path	Revisions and additions to existing roadway, drainage alterations, signing and lining	637	400	£	254,800
J2	Existing underpass/cattle creep	Revisions and additions to existing roadway, drainage alterations, signing and lining	29	400	£	11,600

Macmerry to Newcraighall Budget Costs

Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
K	Sewage works to Crookston Road	Current use is as agricultural fields.	3m wide shared use lit path (cycles / pedestrians), signage.
L	Crookston Road to Carberry Road	Current use is as agricultural fields.	3m wide shared use lit path (cycles / pedestrians), signage.
M	Carberry Road to River Esk Bridge	Current use is as agricultural fields, with access down a short residential cul-de-sac. Connects with the River Esk Cycle Path and NCN Route 1.	3m wide shared use lit path (cycles / pedestrians), signage.
N	River Esk Bridge to Ferguson Drive / Monktonhall Place	River Esk Cycle Path and NCN Route 1. Connecting to residential streets.	Lighting and signage. Marked crossing of the B6415.

Indicative Cost Table



Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget	
K1	Existing unsurfaced Field access track	New Construction	793	475	£	376,675
K2	Existing road and railbridge	Revisions and additions to existing roadway, drainage alterations, signing and lining	30	400	£	12,000
K3	Existing surfaced minor road; existing Spokes Route	Revisions and additions to existing roadway, drainage alterations, signing and lining	10	400	£	4,000
L1	Open Farmland	New Construction	274	475	£	130,150
M1	Open Farmland; east side of Carberry Road	New Construction	193	400	£	77,200
M2	Carberry Road Crossing	Crossing Arrangements	50		£	50,000
M3	Open Farmland	New Construction	745	475	£	353,875
N1	Existing surfaced unlit path	Revisions and additions to existing roadway, drainage alterations, signing and lining	117	150	£	17,550
N2	Existing footbridge/cycle path	Revisions and additions to existing roadway, drainage alterations, signing and lining	67	400	£	26,800
N3	Existing surfaced unlit path	Revisions and additions to existing roadway, drainage alterations, signing and lining	244	150	£	36,600
N4	Existing surfaced unlit path	Revisions and additions to existing roadway, drainage alterations, signing and lining	121	150	£	18,150
N5	Existing housing street/cycle route	General maintenance; access upgrade	323	150	£	48,450
N6	Existing mini roundabout; B6415,	Crossing Arrangements	32		£	50,000
N7	Existing housing street/cycle route	General maintenance; access upgrade	151	150	£	22,650

Macmerry to Newcraighall Budget Costs

Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
O	Monktonhall Place to Queen Margaret University (QMU) and Musselburgh Station	Current use is as agricultural fields, with muddy track crossing small area of open space at Monktonhall Place, under two railway bridges and across a field.	Extend path from Monktonhall Place open space, under the railway bridges and across the field, to link up with the paths around QMU and NCN Route 1. 3m wide shared use lit path (cycles / pedestrians), signage.

Indicative Cost Table

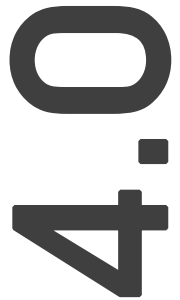


Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget	
O1	Existing Parkland	New Construction	129	475	£	61,275
O2	Open Farmland	New Construction	212	475	£	100,700
O3	Existing surfaced unlit path	Revisions and additions to existing roadway, drainage alterations, signing and lining	430	150	£	64,500
O4	Existing surfaced lit path; NCN 1	General maintenance; access upgrade	716	150	£	107,400
O5	Existing surfaced lit path; NCN 1	General maintenance; access upgrade	480	150	£	72,000
TOTAL LENGTH:			15,830	TOTAL CONSTRUCTION BUDGET:	£	6,180,550
(EXCLUDES PROJECT CONTINGENCY AND OTHER ALLOWANCES)						

West Barns to Macmerry Budget Costs

Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
X1	NCN76 along A1087	Existing road with footway to north side only. Segregated section in places with limited line markings in West Barns	
X2	NCN76	3m wide shared surface part of NCN76 which diverts away from the existing roundabout	Change of use of pavement to shared use path, as the road width will not allow for cycle lane. Signage.
X3	B1377 roundabout along A199 to A1087 roundabout	Existing road with 2m shared surface to north side only. Segregated section in places.	
X4	A199 to B1377 east side of East Linton	Existing road with 2m shared surface to north side only.	
X5	A199 to B1407 at East Linton	Existing road with 2m shared surface to north side only. Segregated section in places.	
X6	A6093 roundabout to A199 north of A1	<u>HAZARD</u> - existing road around roundabout with 2m footway either side.	
X7	A6137 roundabout along A199 to A6093 roundabout	Existing road with line markings on existing carriageway for cyclists	3m wide shared use lit path (cycles / pedestrians), running through a proposed residential estate as part of a green corridor, signage, with low maintenance wildflower verges and native tree / shrub planting.

Indicative Cost Table



Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget
X1	Existing Ex-Trunk road with no cycle lane	Revisions and additions to existing footway, drainage alterations, signing and lining	1320	400	£ 528,000
X2	3m wide shared use path	Revisions and additions to existing footway, drainage alterations, signing and lining	263	400	£ 105,200
X3	Existing Ex-Trunk road with no cycle lane	Revisions and additions to existing footway, drainage alterations, signing and lining	4414	400	£ 1,765,600
X4	Existing Ex-Trunk road with no cycle lane	Revisions and additions to existing footway, drainage alterations, signing and lining	1249	400	£ 499,600
X5	Existing Ex-Trunk road with no cycle lane	3m shared use lit path	7199	400	£ 2,879,600
X6	Existing Ex-Trunk road with no cycle lane	Review road/lighting.surfacing	225	400	£ 90,000
X7	Existing Ex-Trunk road with simple cycle lane lining	Revisions and additions to existing roadway, drainage alterations, signing and lining	925	400	£ 370,000

West Barns to Macmerry Budget Costs

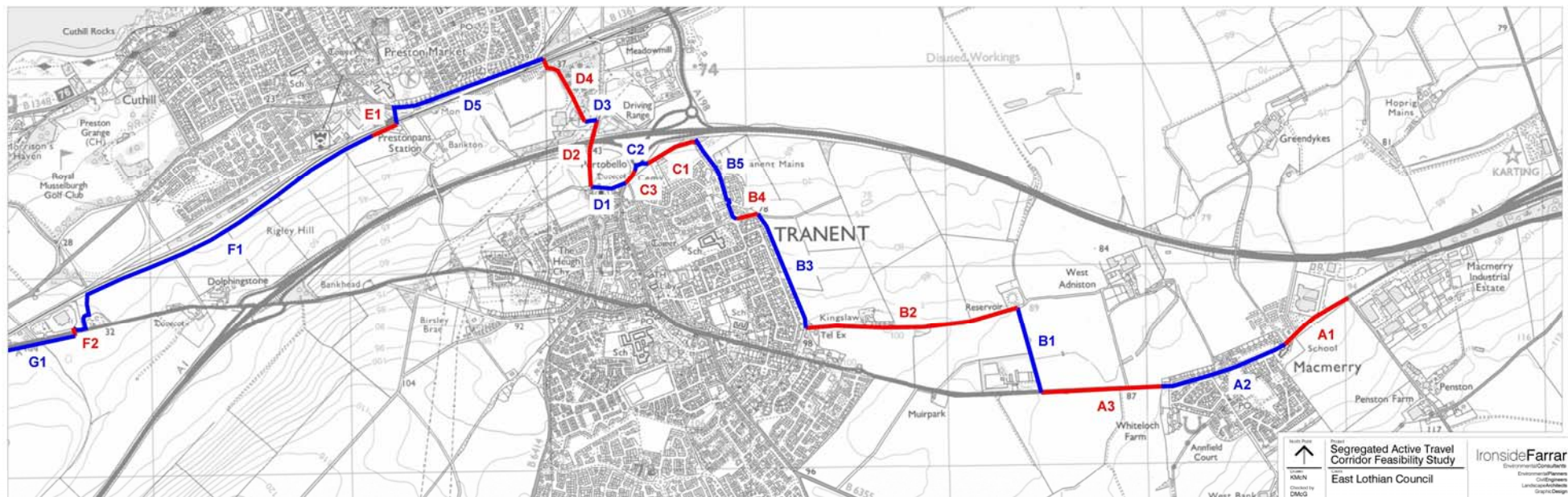
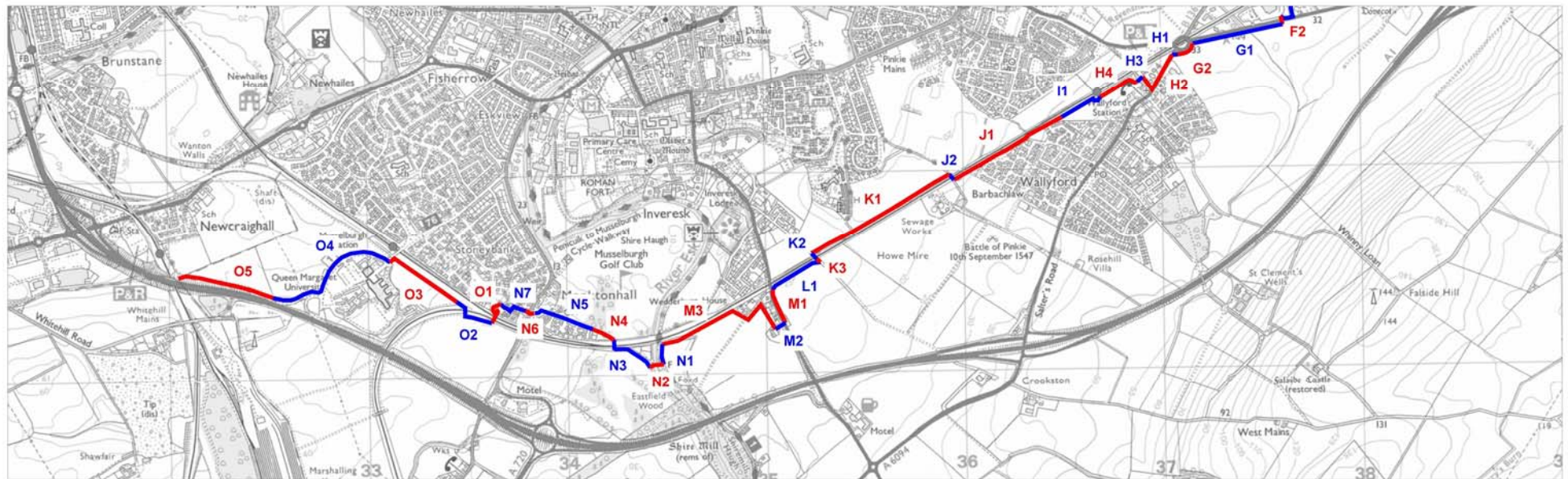
Path Section	Route	Existing Treatment	Proposed Cycle / Pedestrian Provision
X8	A199 over A6137 roundabout	<u>HAZARD</u> - Existing road with footway (Some footway is segregated).	
X9	A199 to A6137 roundabout	Existing road with footpath either side for first 95m then line markings on existing carriageway	
X10	A199 junction to east side of B6471 roundabout	<u>HAZARD</u> - Existing road with 2m footway either side. No footpath around roundabout on northern side, only southern.	
X11	A199 to B6471 junction	Existing road with footpath to northern side (also south in places). Line markings on existing road for cyclists.	Re-painting the road markings along the A199 and through Macmerry. Better signage.

Indicative Cost Table

0.4

Photo / Map Section	Works category; Base Condition	Works category; Proposed Works	Length (m)	Construction Budget Rate/metre	Indicative Budget
X8	Roundabout		177	400	£ 70,800
X9	Existing Ex-Trunk road with simple cycle lane lining	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	1688	400	£ 675,200
X10	Roundabout/A1 junction	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	266	400	£ 106,400
X11	Existing Ex-Trunk road with simple cycle lane lining	Revisions and additions to existing roadway and footways, drainage alterations, signing and lining	5100	400	£ 2,040,000
TOTAL LENGTH:			22,826	TOTAL CON- STRUCTION £ BUDGET: 9,130,400	
(EXCLUDES PROJECT CONTINGENCY AND OTHER ALLOWANCES)					

Macmerry to Newcraighall Route Plan



Note:
Route section identification (A1, A2 etc.)
correspond to matching cost budget
sections.

North Arrow Scale 1:10,000 Date 16.05.16 Version 1.0	Project Segregated Active Travel Corridor Feasibility Study	Ironsides Farrar Transport Consultants 111 Widdow Road, Edinburgh, EH1 1JF Tel: 0131 605 6000 Fax: 0131 605 6100 info@ironsidesfarrar.com
	Client East Lothian Council	
	Project Name Macmerry to Newcraighall Route Plan	
	Drawing No. A1	
Copyright Acknowledgements Ordnance Survey © Crown Copyright 2015. All rights reserved. Licence No. 1000171966	Quality Assurance UKAS 9001 Quality Assurance ISO 9001:2008 1000 Certificate 1000194309	Drawing No. 8583_101

West Barns (Dunbar) to Macmerry Route Plan

